

RECEIVED

FEB 06 2002

TECH CENTER 1600/2900



1655

13

RAW SEQUENCE LISTING

DATE: 01/24/2002

PATENT APPLICATION: US/09/525,361A

TIME: 10:11:07

Input Set : A:\A67860-3.txt

Output Set: N:\CRF3\01242002\I525361A.raw

p5

ENTERED

```

3 <110> APPLICANT: MACK, DAVID
4 GISH, KURT
6 <120> TITLE OF INVENTION: NOVEL METHODS OF DIAGNOSING AND TREATING BREAST CANCER,
7 COMPOSITIONS, AND METHODS OF SCREENING FOR BREAST
8 CANCER MODULATORS
10 <130> FILE REFERENCE: A-67860-3/DJB/JJD
12 <140> CURRENT APPLICATION NUMBER: US 09/525,361A
13 <141> CURRENT FILING DATE: 2000-03-15
15 <150> PRIOR APPLICATION NUMBER: US 09/268,865
16 <151> PRIOR FILING DATE: 1999-03-15
18 <150> PRIOR APPLICATION NUMBER: US 09/450,810
19 <151> PRIOR FILING DATE: 1999-11-29
21 <150> PRIOR APPLICATION NUMBER: US 09/453,137
22 <151> PRIOR FILING DATE: 1999-12-02
24 <150> PRIOR APPLICATION NUMBER: US 09/439,878
25 <151> PRIOR FILING DATE: 1999-11-12
27 <150> PRIOR APPLICATION NUMBER: US 09/440,370
28 <151> PRIOR FILING DATE: 1999-11-12
30 <150> PRIOR APPLICATION NUMBER: US 09/440,493
31 <151> PRIOR FILING DATE: 1999-11-15
33 <150> PRIOR APPLICATION NUMBER: US 09/520,478
34 <151> PRIOR FILING DATE: 2000-03-08
36 <150> PRIOR APPLICATION NUMBER: US 09/440,676
37 <151> PRIOR FILING DATE: 1999-11-16
39 <150> PRIOR APPLICATION NUMBER: US 09/440,677
40 <151> PRIOR FILING DATE: 1999-11-16
42 <160> NUMBER OF SEQ ID NOS: 62
44 <170> SOFTWARE: PatentIn Ver. 2.1
46 <210> SEQ ID NO: 1
47 <211> LENGTH: 3264
48 <212> TYPE: DNA
49 <213> ORGANISM: Homo sapiens
51 <400> SEQUENCE: 1
52 gggacagggc tgaggatgag gagaaccctg gggaccgaga agaccgtgcc ttgcccggaa 60
53 gtcctgcctg taggcctgaa ggacttgccc taacagagcc tcaacaacta cctgggtgatt 120
54 cctacttcag ccccttggtg tgagcagctt ctcaacatga actacagcct ccacttggcc 180
55 ttcgtgtgtc tgagttctctt cactgagagg atgtgcatcc aggggagtc gttcaacgtc 240
56 gaggtcggca gaagtgacaa gctttccctg cctggctttg agaacctcac agcaggatat 300
57 aacaaatttc tcaggcccaa ttttggtgga gaaccggtac agatagcgct gactctggac 360
58 attgcaagta tctctagcat ttcagagagt aacatggact acacagccac catatacctc 420
59 cgacagcgct ggatggacca gcggctggtg tttgaaggca acaagagctt cactctggat 480
60 gccgcctcg tggagttcct ctgggtgcca gatacttaca ttgtggagtc caagaagtcc 540
61 ttcctccatg aagtcactgt gggaaacagg ctcatccgcc tcttctccaa tggcacggtc 600

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/525,361A

DATE: 01/24/2002

TIME: 10:11:07

Input Set : A:\A67860-3.txt

Output Set: N:\CRF3\01242002\I525361A.raw

```

62 ctgtatgccc tcagaatcac gacaactggt gcatgtaaca tggatctgtc taaatacccc 660
63 atggacacac agacatgcaa gttgcagctg gaaagctggg gctatgatgg aaatgatgtg 720
64 gagttcacct ggctgagagg gaacgactct gtgctgggac tggaacacct gcggcttgc 780
65 cagtacacca tagagcggta tttcacctta gtcaccagat cgcagcagga gacaggaaat 840
66 tacactagat tggctctaca gtttgagctt cggaggaatg ttctgtattt ctttttgaa 900
67 acctacgttc cttccacttt cctgggtggtg ttgtcctggg tttcattttg gatctctctc 960
68 gattcagtc ctcgcaagaac ctgcattgga gtgacgaccg tgttatcaat gaccacactg 1020
69 atgategggg cccgcaactt tcttcccaac accaactgct tcatcaaggc catcgatgtg 1080
70 tacctgggga tctgctttag ctttgtgttt ggggccttgc tagaatatgc agttgctcac 1140
71 tacagttcct tacagcagat ggcagccaaa gataggggga caacaaagga agtagaagaa 1200
72 gtcagtatta ctaatatcat caacagctcc atctccagct ttaaaccgaa gatcagcttt 1260
73 gccagcattg aaatttccag cgacaacgtt gactacagtg acttgacaat gaaaaccagc 1320
74 gacaagtcca agtttgcctt ccgagaaaag atgggcagga ttgttgatta tttcacaatt 1380
75 caaaacccca gtaatgttga tcaactattc aaactactgt ttcctttgat ttttatgcta 1440
76 gccaatgtat tttactgggc atactactatg tatttttgag tcaatgttaa atttcttgca 1500
77 tgccataggt cttcaacagg acaagataat gatgtaaatg gtatttttagg ccaagtgtgc 1560
78 acccacatcc aatgggtgcta caagtgactg aaataatatt tgagtcttct tgcacaaaga 1620
79 atgaagctcc aaccattgtt ctaagctgtg tagaagtcct agcattatag gatcttgtaa 1680
80 tagaaacatc agtccattcc tctttcatct taatcaagga cattcccatg gagcccaaga 1740
81 ttacaaatgt actcagggct gtttattcgg tggctccctg gtttgcatth acctcatata 1800
82 aagaatggga aggagaccat tgggtaaccc tcaagtgtca gaagttgttt ctaaagtaac 1860
83 tatacatgtt ttttactaaa tctctgcagt gcttataaaa tacattgttg cctatttagg 1920
84 gagtaacatt ttctagtttt tgtttctggt taaaatgaaa tatgggctta tgtcaattca 1980
85 ttggaagtca atgcaactaac tcaataccaa gatgagtttt taaataatga atattattta 2040
86 ataccacaac agaattatcc ccaatttcca ataagtccta tcattgaaaa ttcaaatata 2100
87 agtgaagaaa aaattagtag atcaacaatc taaacaaatc cctcggttct aagatacaat 2160
88 ggattcccca tactggaagg actctgagggc tttattcccc cactatgcat atcttatcat 2220
89 tttattatta tacacacatc catcctaaac tatactaaag cccttttccc atgcatggat 2280
90 ggaatggaa gatttttttg taactgttgc tagaagtctt aatatgggct gttgccatga 2340
91 aggcttgag aattgagtc attttctagc tgcctttatt cacatagtga tggggtacta 2400
92 aaagtactgg gttgactcag agagtcgctg tcattctgtc attgctgcta ctctaact 2460
93 gagcaacact ctcccagtg cagatccctt gtatcattec aagaggagca ttcacccctt 2520
94 tgcctctaat atcaggaatg atgcttatta gaaaacaaac tgcttgacc aggaacaagt 2580
95 ggcttagctt aagtaaaact ggctttgtct agatccctga tcttccagc tggctctgtc 2640
96 tgagtggctt atcccgcatg agcaggagcg tgctggcctt gactactgaa ctttctgagt 2700
97 aacaatgaga cacgttacag aacctatgtt cagggtgcgg gtgagctgcc ctctccaaat 2760
98 ccagccagag atgcacattc ctgggccagt ctgagccaac agtaccaaaa gtgatttttg 2820
99 agtggtgccg ggtaaaggct tccagttcag cctcagttat tttagacaat ctgccatct 2880
100 ttaatttctt agcttctctg tctaataaat gcacggcttt acctttctg tcagaaataa 2940
101 accaaggctc taaaagatga tttcccttct gtaactccct agagccacag gttctcattc 3000
102 cttttcccat tatacttctc acaattcagt ttctatgagt ttgatccct gattttttta 3060
103 acaaaatatt tctaaccgga atgggtggga gtgctggtga aaagagatga aatgtggttg 3120
104 tatgagccaa tcatatttgt gattttttta aaaaagttta aaaggaaata tctgttctga 3180
105 aaccacactt aagcattgtt tttatataaa aacaatgata aagatgtgaa ctgtgaaata 3240
106 aatataccat attagctacc cacc 3264
109 <210> SEQ ID NO: 2
110 <211> LENGTH: 1323
111 <212> TYPE: DNA
112 <213> ORGANISM: Homo sapiens

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/525,361A

DATE: 01/24/2002

TIME: 10:11:07

Input Set : A:\A67860-3.txt

Output Set: N:\CRF3\01242002\I525361A.raw

114 <400> SEQUENCE: 2

```

115 atgaactaca gcctccactt ggccttcgtg tgtotgagtc tcttcactga gaggatgtgc 60
116 atccagggga gtcagttcaa cgtcgaggtc ggcagaagtg acaagctttc cctgcctggc 120
117 tttgagaacc tcacagcagg atataacaaa tttctcaggc ccaatttttg tggagaaccc 180
118 gtacagatag cgctgactct ggacattgca agtatctcta gcatttcaga gagtaacatg 240
119 gactacacag ccaccatata cctccgacag cgctggatgg accagcggct ggtgtttgaa 300
120 ggcaacaaga gcttcactct ggatgccgcg ctcgtggagt tcctctgggt gccagatact 360
121 tacattgtgg agtccaagaa gtcccttctc catgaagtca ctgtgggaaa caggctcatc 420
122 cgccctctct ccaatggcac ggtcctgtat gccctcagaa tcacgacaac tgttgcatgt 480
123 aacatggatc tgtctaaata ccccatggac acacagacat gcaagttgca gctggaaagc 540
124 tggggctatg atggaaatga tgtggagttc acctggctga gagggaaacg ctctgtgcgt 600
125 ggactggaac acctgcggct tgctcagtag accatagagc ggtatttcac cttagtcacc 660
126 agatcgacag aggagacagg aaattacact agattggtct tacagtttga gcttcggagg 720
127 aatgttctgt atttcatttt ggaaacctac gttccctcca ctttcttggg ggtgtttgtc 780
128 tgggtttcat tttggattct tctcgattca gtccctgcaa gaacctgcat tggagtgcag 840
129 accgtgttat caatgaccac actgtatgat ggggtccgca cttctcttcc caacaccaac 900
130 tgcttcatca aggccatcga tgtgtacctg gggatctgct ttagctttgt gtttggggcc 960
131 ttgctagaat atgcagttgc tcactacagt tccttacagc agatggcagc caaagatagg 1020
132 gggacaacaa aggaagtaga agaagtcagt attactaata tcatcaacag ctccatctcc 1080
133 agctttaaac ggaagatcag ctttgccagc attgaaattt ccagcgacaa cgttgactac 1140
134 agtgacttga caatgaaaac cagcgacaag ttcaagtttg tcttccgaga aaagatgggc 1200
135 aggattgttg attatttcac aattcaaaac ccagtaatg ttgatcacta ttccaaacta 1260
136 ctgtttcctt tgatttttat gctagccaat gtattttact gggcatacta catgtatttt 1320
137 tga 1323

```

140 <210> SEQ ID NO: 3

141 <211> LENGTH: 440

142 <212> TYPE: PRT

143 <213> ORGANISM: Homo sapiens

145 <400> SEQUENCE: 3

```

146 Met Asn Tyr Ser Leu His Leu Ala Phe Val Cys Leu Ser Leu Phe Thr
147   1             5             10             15
149 Glu Arg Met Cys Ile Gln Gly Ser Gln Phe Asn Val Glu Val Gly Arg
150             20             25             30
152 Ser Asp Lys Leu Ser Leu Pro Gly Phe Glu Asn Leu Thr Ala Gly Tyr
153             35             40             45
155 Asn Lys Phe Leu Arg Pro Asn Phe Gly Gly Glu Pro Val Gln Ile Ala
156             50             55             60
158 Leu Thr Leu Asp Ile Ala Ser Ile Ser Ser Ile Ser Glu Ser Asn Met
159   65             70             75             80
161 Asp Tyr Thr Ala Thr Ile Tyr Leu Arg Gln Arg Trp Met Asp Gln Arg
162             85             90             95
164 Leu Val Phe Glu Gly Asn Lys Ser Phe Thr Leu Asp Ala Arg Leu Val
165             100            105            110
167 Glu Phe Leu Trp Val Pro Asp Thr Tyr Ile Val Glu Ser Lys Lys Ser
168             115            120            125
170 Phe Leu His Glu Val Thr Val Gly Asn Arg Leu Ile Arg Leu Phe Ser
171             130            135            140
173 Asn Gly Thr Val Leu Tyr Ala Leu Arg Ile Thr Thr Thr Val Ala Cys
174 145            150            155            160

```

RAW SEQUENCE LISTING

DATE: 01/24/2002

PATENT APPLICATION: US/09/525,361A

TIME: 10:11:07

Input Set : A:\A67860-3.txt

Output Set: N:\CRF3\01242002\I525361A.raw

```

176 Asn Met Asp Leu Ser Lys Tyr Pro Met Asp Thr Gln Thr Cys Lys Leu
177          165          170          175
179 Gln Leu Glu Ser Trp Gly Tyr Asp Gly Asn Asp Val Glu Phe Thr Trp
180          180          185          190
182 Leu Arg Gly Asn Asp Ser Val Arg Gly Leu Glu His Leu Arg Leu Ala
183          195          200          205
185 Gln Tyr Thr Ile Glu Arg Tyr Phe Thr Leu Val Thr Arg Ser Gln Gln
186          210          215          220
188 Glu Thr Gly Asn Tyr Thr Arg Leu Val Leu Gln Phe Glu Leu Arg Arg
189 225          230          235          240
191 Asn Val Leu Tyr Phe Ile Leu Glu Thr Tyr Val Pro Ser Thr Phe Leu
192          245          250          255
194 Val Val Leu Ser Trp Val Ser Phe Trp Ile Ser Leu Asp Ser Val Pro
195          260          265          270
197 Ala Arg Thr Cys Ile Gly Val Thr Thr Val Leu Ser Met Thr Thr Leu
198          275          280          285
200 Met Ile Gly Ser Arg Thr Ser Leu Pro Asn Thr Asn Cys Phe Ile Lys
201          290          295          300
203 Ala Ile Asp Val Tyr Leu Gly Ile Cys Phe Ser Phe Val Phe Gly Ala
204 305          310          315          320
206 Leu Leu Glu Tyr Ala Val Ala His Tyr Ser Ser Leu Gln Gln Met Ala
207          325          330          335
209 Ala Lys Asp Arg Gly Thr Thr Lys Glu Val Glu Glu Val Ser Ile Thr
210          340          345          350
212 Asn Ile Ile Asn Ser Ser Ile Ser Ser Phe Lys Arg Lys Ile Ser Phe
213          355          360          365
215 Ala Ser Ile Glu Ile Ser Ser Asp Asn Val Asp Tyr Ser Asp Leu Thr
216          370          375          380
218 Met Lys Thr Ser Asp Lys Phe Lys Phe Val Phe Arg Glu Lys Met Gly
219 385          390          395          400
221 Arg Ile Val Asp Tyr Phe Thr Ile Gln Asn Pro Ser Asn Val Asp His
222          405          410          415
224 Tyr Ser Lys Leu Leu Phe Pro Leu Ile Phe Met Leu Ala Asn Val Phe
225          420          425          430
227 Tyr Trp Ala Tyr Tyr Met Tyr Phe
228          435          440
231 <210> SEQ ID NO: 4
232 <211> LENGTH: 15
233 <212> TYPE: PRT
234 <213> ORGANISM: Artificial Sequence
236 <220> FEATURE:
237 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
239 <400> SEQUENCE: 4
240 Ala Cys Asn Met Asp Leu Ser Lys Tyr Pro Met Asp Thr Gln Thr
241 1          5          10          15
244 <210> SEQ ID NO: 5
245 <211> LENGTH: 15
246 <212> TYPE: PRT
247 <213> ORGANISM: Artificial Sequence

```

RAW SEQUENCE LISTING

DATE: 01/24/2002

PATENT APPLICATION: US/09/525,361A

TIME: 10:11:07

Input Set : A:\A67860-3.txt

Output Set: N:\CRF3\01242002\I525361A.raw

249 <220> FEATURE:

250 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic

252 <400> SEQUENCE: 5

253 Cys Lys Leu Gln Leu Glu Ser Trp Gly Tyr Asp Gly Asn Asp Val

254 1 5 10 15

257 <210> SEQ ID NO: 6

258 <211> LENGTH: 3290

259 <212> TYPE: DNA

260 <213> ORGANISM: Homo sapiens

262 <400> SEQUENCE: 6

```

263 gtgaagagag gcgcggcgtg actgagctac ggttctggct gcgtcctaga ggcacccggg 60
264 gcagtaaaac cgctgcgacg gcggaggcgg cggccaggcc gagagcaggc cgggcagggg 120
265 tgcgcggacg agggcgcttg gccgggtttc ggcttcggcc acagcttttt ttctcaaggt 180
266 gcaatgaaag ccttccacac ttctgtgtgt gtcttctggt tgtttgggag tgtctctgaa 240
267 gccaaagtgt atgattttga ggatgaggag gacatagtag agtatgatga taatgacttc 300
268 gctgaatttg aggatgtcat ggaagactct gttactgaat ctctcaacg ggtcataatc 360
269 actgaagatg atgaagatga gacctgtg gagttggaag ggcaggatga aaaccaagaa 420
270 ggagattttg aagatgcaga taccaggag ggagatactg agagtgaacc atatgatgat 480
271 gaagaatttg aaggttatga agacaaacca gatacttctt ctagcaaaaa taaagaccca 540
272 ataacgattg ttgatgttcc tgcacacctc cagaacagct gggagagtta ttatctagaa 600
273 attttgatgg tgaactgtct gcttgcttat atcatgaatt acatcattgg gaagaataaa 660
274 aacagtcgcc ttgcacaggc ctggtttaac actcataggg agcttttgga gagcaacttt 720
275 acttttagtg gggatgatgg aactaacaaa gaagccacaa gcacaggaaa gttgaaccag 780
276 gagaatgagc acatctataa cctgtggtgt tctggtcgag tgtgctgtga gggcatgctt 840
277 atccagctga ggttccctca gagacaagac ttactgaatg tcttgccccg gatgatgagg 900
278 ccagtgaagt atcaagtga aataaaagta accatgaatg atgaagacat ggatacctac 960
279 gtatttgctg ttggcacacg gaaagccttg gtgcgactac agaaagagat gcaggatttg 1020
280 agtgagtttt gtagtgataa acctaaagt cggagcaaagt atggactgcc ggactctttg 1080
281 gccatcctgt cagagatggg agaagtcaca gacggaatga tggatacaaa gatggttcac 1140
282 ttcttacaca cctatgctga caagattgaa tctgttcatt ttccagacca gttctctggt 1200
283 ccaaaaatta tgcaagagga aggtcagcct ttaaagctac ctgacactaa gaggacactg 1260
284 ttgtttacat ttaatgtgcc tggctcaggt aacacttacc caaaggatat ggaggcactg 1320
285 ctacccttga tgaacatggt gattttattct attgataaag ccaaaaagtt ccgactcaac 1380
286 agagaaggca acaaaaaagc agataagaac cgtgcccag tagaagagaa cttcttgaaa 1440
287 ctgacacatg tgcaaaagca ggaagcagca cagtctcggc gggaggagaa aaaaagagca 1500
288 gagaaggagc gaatcatgaa tgaggaagat cctgagaaac agcgcaggct ggaggaggct 1560
289 gcattgaggg gtgacgaaaa agaagttgga aaagaagcaa atgaaaatga aacaaatcaa 1620
290 agtgaaagcc atgtaaagcc atcccagaga tttgagttct gatgccacct gtaagctctg 1680
291 aattcacagg aaacatgaaa aacgccagtc catttctcaa ccttaaattt cagacagtct 1740
292 tgggcaactg agaaatcctt atttcatcat ctactctgtt tggggtttgg ggttttacag 1800
293 agattgaaga tacctggaaa gggctctgtt tcaagaattt tttttccag ataataaaat 1860
294 tattttgatt attttataaa aggaatgatc tatgaaatct gtgtaggttt taaatatatt 1920
295 aaaaattata atacaaatca tcagtgtctt tagtacttca gtgtttaaag aaataccatg 1980
296 aaatttatag gtagataacc agattgttgc tttttgttta aaccaagcag ttgaaatggc 2040
297 tataaagact gactctaaac caagattctg caaataatga ttggaattgc acaataaaca 2100
298 ttgcttgatg ttttcttgta tgtctacatt aaacttgaga aaaagtaaaa attagaacac 2160
299 tgtatgtagt aatgaaattt cagggaccca gaacataatg tagtatatgt ttttaggttg 2220
300 gagatgctga taacaaaatt aataggaagt ctgtaggcat taggatactg acatgtacat 2280
301 ggaaaattct agggacagga gcatcatttt ttccttacct gataccacga accagtgaca 2340

```

Use of n and/or Xaa has been detected in the Sequence Listing.
 The following sequence listing to insure a corresponding
 explanation is presented in the <220> to <223> fields of
 each sequence using n or Xaa.

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/525,361A

DATE: 01/24/2002

TIME: 10:11:08

Input Set : A:\A67860-3.txt

Output Set: N:\CRF3\01242002\I525361A.raw

L:1174 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:32
L:1175 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:32
L:1796 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38
L:1883 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39
L:2652 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:53
L:2992 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:56